AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An optical transmission system, comprising:

an optical transmitter including a direct modulation light source, said optical transmitter outputting signal light in a signal wavelength band;

an optical receiver receiving the signal light;

an optical fiber transmission line, as a transmission medium through which signal light where a plurality of signal channels are multiplexed propagates, provided between said optical transmitter and said optical receiver; and

a dispersion compensator provided on one of an optical ~~paths~~ path between the signal transmitting end of said optical transmitter and the signal entering end of said optical fiber transmission line, ~~on~~ said optical fiber transmission line, and an optical path between the signal emitting end of said optical fiber transmission line and the signal receiving end of said optical receiver, said dispersion compensator dispersion-compensating for a chromatic dispersion of signal channel group in a second wavelength band other than a first wavelength band which includes a zero-dispersion wavelength of said optical fiber transmission line among the plurality of signal channels,

wherein, when a bit rate is B (Gb/s) at a specific wavelength in the second wavelength band where a total chromatic dispersion in said optical fiber transmission line and said dispersion compensator becomes the highest, a chromatic dispersion value at the specific wavelength is ~~grater~~ greater than 0 (ps/nm) but $7500/B^2$ (ps/nm) or less, and

wherein, in said entire optical transmission system, loss in each signal channel in the second wavelength band is smaller than the highest loss among losses in the signal channels in the first wavelength band.

2. (Currently Amended) An optical transmission system according to claim 1, wherein a total chromatic dispersion in said optical fiber transmission line and said dispersion compensator is ~~grater~~ greater than 0 (ps/nm) but $7500/B^2$ (ps/nm) or less in all the signal channels in the second wavelength band.

3. (Original) An optical transmission system according to claim 1, wherein the bit rate of at least one signal channel among the signal channels included in the second wavelength band is higher than any bit rate of all the signal channels in the first wavelength band.

4. (Original) An optical transmission system according to claim 1, wherein said dispersion compensator includes a dispersion compensating optical fiber.

5. (Original) An optical transmission system according to claim 1, wherein said optical fiber transmission line includes a single-mode optical fiber having a zero-dispersion wavelength which exists near a wavelength of 1.3 μm.

6. (Original) An optical transmission system according to claim 1, wherein said optical fiber transmission line, at a wavelength of 1.38 μm, has a transmission loss smaller than a transmission loss at a wavelength of 1.31 μm.

7. (Original) An optical transmission system according to claim 1, wherein said optical fiber transmission line has a zero-dispersion wavelength which exists in a wavelength range of 1.35 μm to 1.5 μm.

8. (Original) An optical transmission system according to claim 1, further comprising pumping light supply means for supplying Raman amplification pumping light into said optical fiber transmission line so as to Raman-amplify the signal light.

9. (Original) An optical transmission system according to claim 8, wherein said pumping light supply means supplies the Raman amplification pumping light, where a plurality of pumping channels in a wavelength range of 1.2 μm to 1.3 μm are multiplexed, into said optical fiber transmission line.

10. (Original) An optical transmission system according to claim 4, further comprising pumping light supply means for supplying Raman amplification pumping light into said dispersion compensating optical fiber so as to Raman-amplify the signal light.

11. (Currently Amended) An optical transmission system, comprising:

an optical transmitter including a direct modulation light source, said optical transmitter outputting signal light in a signal wavelength band;

an optical receiver receiving the signal light;

an optical fiber transmission line, as a transmission medium through which signal light where a plurality of signal channels are multiplexed propagates, provided between said optical transmitter and said optical receiver; and

a dispersion compensator provided on one of an optical ~~paths~~ path between the signal transmitting end of said optical transmitter and the signal entering end of said optical fiber transmission line, ~~on~~ said optical fiber transmission line, and an optical path between the signal emitting end of said optical fiber transmission line and the signal receiving end of said optical receiver, said dispersion-compensator dispersion-compensating for a chromatic dispersion of a signal channel group in a second wavelength band other than a first wavelength band which includes a zero-dispersion wavelength of said optical fiber transmission line among the plurality of signal channels,

wherein, when a bit rate is B (Gb/s) at a specific wavelength in the second wavelength band where a total chromatic dispersion in said optical fiber transmission line and said dispersion compensator becomes the highest, a chromatic dispersion value at the specific wavelength is ~~grater~~ greater than 0 (ps/nm) but $7500/B^2$ (ps/nm) or less, and

wherein the lowest received power among the received powers for the signal channels in the second wavelength band is higher than the lowest optical power among the optical powers in said optical fiber transmission line of the signal channels in the first wavelength band.

12. (Currently Amended) An optical transmission system according to claim 11, wherein the total chromatic dispersion in said optical fiber transmission line and said dispersion compensator is ~~grater~~ greater than 0 (ps/nm) but $7500/B^2$ (ps/nm) or less in all the signal channels in the second wavelength band.

13. (Original) An optical transmission system according to claim 11, wherein the bit rate of at least one signal channel among the signal channels included in the secondwavelength band is higher than any bit rate of all the signal channels
in the first wavelength band.

14. (Original) An optical transmission system according to claim 11, wherein said dispersion compensator includes a dispersion compensating optical fiber.

15. (Original) An optical transmission system according to claim 11, wherein said optical fiber transmission line includes a single-mode optical fiber having a zero-dispersion wavelength which exists near a wavelength of 1.3 μm.

16. (Original) An optical transmission system according to claim 11, wherein said optical fiber transmission line, at the wavelength of 1.38 μm, has a transmission loss smaller than a transmission loss at the wavelength of 1.31 μm.

17. (Original) An optical transmission system according to claim 11, wherein said optical fiber transmission line has a zero-dispersion wavelength which exists in a wavelength range of 1.35 μm to 1.5 μm.

18. (Original) An optical transmission system according to claim 11, further comprising pumping light supply means for supplying Raman amplification pumping light into said optical fiber transmission line so as to Raman-amplify the signal light.

19. (Original) An optical transmission system according to claim 18, wherein said pumping light supply means supplies the Raman amplification pumping light, where a plurality of pumping channels within a wavelength range of 1.2 μm to 1.3 μm are multiplexed, into said optical fiber transmission line.

20. (Original) An optical transmission system according to claim 14, further comprising pumping light supply means for supplying Raman amplification pumping light into said dispersion compensating optical fiber so as to Raman-amplify the signal light.